

Docket No.: JCLA8474

Application No.: 10/015,447

In The Claims

Claim 1. (Currently Amended) A weight release mechanism for an underwater object that facilitates the retrieval of the underwater object, wherein the underwater object is self-buoyant and contains a heavy block groove, the groove has a bottom surface with a through-hole thereon, the mechanism comprising of:

a heavy block that ~~can~~-fits inside the heavy block groove, wherein the heavy block has a weight capable of overcoming the buoyancy force of the underwater object so that the heavy block and the underwater object will sink to the bottom when dropped into a pool of water, the heavy block has a flat surface and the flat surface includes a latching groove and one or more spring grooves, the latching groove further includes an opening, and the flat surface presses against the bottom surface of the heavy block when the heavy block is engaged inside the heavy block groove;

a spring inside the spring groove, wherein the spring has a free length greater than the depth of the spring groove so that the spring arc compressed between the bottom of the spring groove and the bottom surface of the heavy block groove when the heavy block is engaged inside the heavy block groove;

a bearing within the underwater object;

a rotary spindle tightly inserted into the through-hole and fixed relative to the bearing so that the rotary spindle ~~may~~-rotates inside the through-hole, wherein the spindle has a first end and a second end, the first end is within the heavy block groove and the second end is in the

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interior of the underwater object, the first end further includes an engaging block, sectional profile of the engaging block at the first terminal is identical to the profile of the opening in the latching groove so that the first end of the rotary axle may inserts into the latching groove via the opening and the engaging block may rotates inside the latching groove so that the engaging block may hooks inside the latching groove with the heavy block fixed inside the heavy block groove; and

an electric motor inside the underwater object engaged with the second end of the rotary spindle for driving the spindle.

Claim 2. (Original) The weight release mechanism of claim 1, wherein the electric motor further incorporates a set of gears to reduce rotational speed.

Claim 3. (Original) The weight release mechanism of claim 1, wherein the rotary spindle further includes a sealing ring for tightening the seal between the rotary spindle and the through hole.

Claim 4. (Currently Amended) An underwater object, comprising:

a main body having self-buoyancy, wherein the main body includes a heavy block groove, the heavy block groove has an interior bottom surface and the bottom surface has a through-hole thereon;

a heavy block fitted inside the heavy block groove, wherein weight of the heavy block may-overcomes the self-buoyancy of the underwater object so that the assembled heavy block together with the underwater object may-sinks to the bottom when released from water surface, the heavy block further includes a flat surface having a latching groove and one or more spring grooves, the latching groove further includes an opening such that the flat surface of the heavy

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block presses against the bottom surface of the heavy block groove when the heavy block is engaged into the heavy block groove;

a spring inside each spring groove, wherein uncompressed length of the spring is greater than depth of the spring groove so that the spring is compressed between the bottom section of the spring groove and the bottom surface of the heavy block groove to store up elastic energy when the heavy block is engaged to the heavy block groove;

a bearing inside the main body;

a rotary spindle tightly engaged within the through-hole and fastened to the bearing so that the spindle is free to rotate inside the through-hole relative to the bearing, wherein the spindle has a first end and a second end, the first end is located inside the heavy block groove and the second end is located in the interior of the main body, the first end further includes an engaging block whose cross-sectional profile is identical to the opening profile of the latching groove so that the first end of the spindle ~~may~~ inserts into the latching groove via the opening and the engaging block ~~may~~ rotates inside the latching groove, and the engaging block ~~may~~ also hooks inside the latching groove so that the heavy block is tightly fastened to the heavy block groove; and

an electric motor inside the main body coupled to the second end of the spindle for rotating the spindle.

Claims 5. (Original) The underwater object of claim 4, wherein the electric motor also incorporates a set of gears to reduce rotational speed.

Claim 6. (Original) The underwater object of claim 4, wherein the rotary spindle further includes a sealing ring for tightening the seal between the rotary spindle and the through hole.